

CLAIMS

1. (previously presented): A recombinant polyketide synthase gene that encodes a loading module comprising an inactivated beta-ketoacylsynthase (KS^Q) domain, an acyl transferase (AT) domain specific for ethylmalonyl CoA, and an acyl carrier protein (ACP) domain.
2. (previously presented): An isolated host cell comprising (a) the recombinant polyketide synthase gene of Claim 1, and (b) a recombinant gene selected from the group consisting of recombinant crotonyl CoA reductase (*ccr*), recombinant isobutyryl CoA mutase (*icm*), and a combination thereof.
3. (withdrawn): A method for the production of 14,15-propenylerythromycin and/or the corresponding 14,15-propenyl-6-deoxyerythronolide B, which comprises culturing a recombinant host cell that expresses isobutyryl CoA mutase, valine dehydrogenase, butyryl CoA dehydrogenase, and 6-deoxyerythronolide polyketide synthase.
4. (withdrawn): The method of Claim 3, wherein said host cell is a *Saccharopolyspora erythraea* host cell.
5. (withdrawn): The method of Claim 4, wherein said host cell does not express a functional *eryM* gene product.
6. (withdrawn): The method of Claim 3, wherein said butyryl CoA dehydrogenase is expressed from a gene isolated from *Clostridium acetobutylicum* or *Mycobacterium tuberculosis* (*fadE25*).
7. (previously presented): The recombinant polyketide synthase gene of claim 1, which further comprises two or more extender modules, wherein at least one extender module has an AT domain specific for malonyl CoA.

8. (previously presented): The recombinant polyketide synthase gene of claim 7, which further comprises five or six extender modules, wherein at least one extender module has an AT domain specific for malonyl CoA.

9. (previously presented): The recombinant polyketide synthase gene of claim 7, further comprising six extender modules specific for methylmalonyl CoA.

10. (previously presented): The host cell of Claim 2, wherein said host cell comprises a recombinant crotonyl CoA reductase (*ccr*).

11. (previously presented): The host cell of claim 10, wherein the crotonyl CoA reductase is from *Streptomyces coelicolor*.

12. (previously presented): The host cell of claim 10, wherein the crotonyl CoA reductase is from *S. collinus*.

13. (previously presented): The host cell of Claim 2, wherein said host cell comprises a recombinant isobutyryl CoA mutase (*icm*).

14. (previously presented): The host cell of Claim 13, wherein said host cell comprises a recombinant *icmA*.

15. (previously presented): The host cell of Claim 13, wherein said host cell comprises a recombinant *icmB*.

16. (previously presented): The host cell of claim 13, wherein the *icm* is from *S. cinnamonensis*.

17. (previously presented): The host cell of claim 2, which is a *Saccharopolyspora* host cell.

18. (previously presented): The host cell of claim 2, which is a *Streptomyces* host cell.
19. (previously presented): The host cell of claim 2, which is an *E. coli* host cell.